

We claim:

1. A vibration dampening device for wrapping a human body part, comprising:  
5 a strap having a nominal width and having a body contacting surface and  
an outer surface;

a step member engaged to the strap, wherein said step member has a length and a width, and the length of said step member is longer than the width of said step member, and further wherein the length of the step member is longer than the width of the strap.

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2. The device of claim 1, wherein the strap defines a central axis and the step member defines an axis along its length and said step member is engaged to the body contacting surface of the strap so that its axis is substantially perpendicular to the axis of the strap.

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3. The device of claim 2, wherein the step member defines a first wing portion at its distal end and a second wing portion at its proximal end, and wherein the first wing portion extends beyond the width of the strap when the step member is engaged to the strap.

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4. The device of claim 1, wherein the strap defines a central axis and the step member defines an axis along its length, and said step member is engaged to the body contacting surface of the strap so that its axis is either parallel to or generally aligned with the axis of the strap.

5. The device of claim 1, further comprising one or more additional step members engaged to the body contacting surface of the strap.

6. The device of claim 5, wherein at least one of the additional step members has a modulus of elasticity different from the step member.

5 7. The device of claim 5, wherein said step member and said additional step member(s) are disposed along the strap so as not to contact one another.

8. The device of claim 7, wherein said step member and said additional step member(s) are disposed along the strap so as to define a gap between each adjacent step member of from 0.25 to 4.0 inches.

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9. The device of claim 4, further comprising a second step member defining an axis along its length and engaged to said step member so that its axis is either parallel to or generally aligned with the axis of said step member.

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10. The device of claim 4, further comprising a second step member defining an axis along its length and engaged to said step member so that its axis is substantially perpendicular to the axis of said step member.

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11. The device of claim 1, wherein the strap defines a proximal end and a distal end, and further comprising means for detachably securing the distal end of the strap to the proximal end of the strap.

12. The device of claim 11, wherein the means for detachably securing the distal end of the strap to the proximal end of the strap comprises a hook and loop fastener wherein a hook

portion is provided on the body contacting surface at the proximal end of the strap and a loop portion is provided on an outer surface at the distal end of the strap.

13. The device of claim 1, wherein the strap comprises at least in part a material  
5 selected from the group consisting of neoprene, polyethylene, polyurethane and spandex.

14. The device of claim 13, further comprising a woven or non woven fabric or felt covering forming the body contacting surface of the strap.

10 15. The device of claim 13, wherein the step member comprises the same material(s) as the strap.

16. The device of claim 1, wherein the step member is engaged to the body contacting surface with an adhesive.

15 17. The device of claim 1, wherein the strap comprises a viscoelastic material having a density in the range of 7 to 15 pounds per cubic foot, a tensile strength from 40 to 80 psi and a minimum elongation of 100%.

20 18. The device of claim 17, wherein the viscoelastic material has a compression deflection at 25% of from 3 to 10 psi.

19. The device of claim 14, further comprising a woven or nonwoven fabric or felt covering forming the outer surface of the strap.

20. The device of claim 1, wherein the strap when wrapped around a human body part exerts a tension of no more than 5 pounds-force on said human body part.

21. The device of claim 1, further comprising a tension limiter formed by attaching a  
5 loop to the strap.

22. The device of claim 21, wherein said loop has two ends and a loop portion between said ends, and wherein said ends are attached to the body contacting surface of the strap when the loop is in relaxed condition and the strap is not under tension.

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23. A vibration dampening device for wrapping a human body part, comprising a strap having a nominal width and having a body contacting surface and an outer surface, wherein said strap defines a central axis; and one or more wing sections extending beyond the nominal width of said strap.

24. The device of claim 23, wherein the wing sections extend in a direction generally perpendicular to the axis of the strap.

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25. The device of claim 23, wherein a first wing section extends from a first side of the strap in a direction generally perpendicular to the axis, and a second wing section extends from a second side of the strap in a direction generally perpendicular to the axis.

26. The device of claim 25, wherein the first wing section defines a first center axis

and wherein the second wing section defines a second center axis, and wherein the first center axis of the first wing section is generally aligned with the second center axis of the second wing section.

5        27. The device of claim 25, wherein the wing sections extend outwardly from the strap from opposite sides of the strap.

28. The device of claim 22, wherein a first wing section is spaced apart from a second wing section so as to define a gap between of from 0.25 to 4.0 inches.

10       29. The device of claim 22, wherein the strap has a proximal end and a distal end and means for detachably securing the distal end to the proximal end of the strap.

15       30. The device of claim 29, wherein the means for detachably securing the distal end to the proximal end of the strap comprises a hook and loop fastener, wherein a hook portion is provided on the body contacting surface at the proximal end of the strap and a loop portion is provided on the outer surface at the distal end of the strap.

20       31. The device of claim 22, wherein the strap comprises at least one material selected from the group consisting of neoprene, polyethylene, polyurethane and spandex.

32. The device of claim 31, further comprising a woven or nonwoven fabric or felt covering forming the body contacting surface of the strap.

25       33. The device of claim 22, wherein the strap is formed from a viscoelastic material

having a density in the range of 7 to 15 pounds per cubic foot, a tensile strength from 40 to 80 psi, and a minimum elongation of 100%.

34. The device of claim 33, wherein the viscoelastic material has a compression  
5 deflection at 25% of from 3 to 10 psi.

35. The device of claim 32, further comprising a woven or nonwoven fabric or felt covering forming the outer surface of the strap.

10 36. A method for dampening vibration of soft tissue or musculature of a human wearer's body part, comprising:

providing a stretchable strap having a nominal width and having a body contacting surface and an outer surface, wherein said strap defines a central axis, and wherein a step member is engaged to the stretchable strap, wherein said step member has a length and a width and the length of said step member is longer than the width of said step member and further wherein the length of the step member is longer than the width of the stretchable strap;

15 20 wrapping the stretchable strap around the body part so that the body contacting surface is in contact with the wearer's skin and the stretchable strap is under tension.

37. The method of claim 36, wherein the stretchable strap exerts a tension of no more than 5 pounds – force.

25 38. The method of claim 36, wherein the stretchable strap exerts a tension of 0.1

to 5 pounds-force.

39. The method of claim 36, wherein the strap has a proximal end and a distal end and has a means for adjustably fastening the proximal end to the distal end.

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40. The method of claim 36, wherein the step member is engaged to the body contacting surface of the strap.

41. The method of claim 40, wherein one or more additional step members are engaged to the strap and are disposed along the strap in spaced apart relation so as not to contact one another.

41. The method of claim 40, wherein at least one of the additional step members has a modulus of elasticity different from the step member.

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42. The method of claim 36, wherein a second step member defining an axis along its length is engaged to said step member so that the axis of the second step member is parallel to or generally aligned with an axis defined by the step member.

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43. The method of claim 36, wherein a second step member defining an axis along its length is engaged to said step member so that the axis of the second step member is aligned substantially perpendicularly to an axis defined by the step member.

44. The method of claim 36, wherein the strap is wrapped around a body

part selected from the group consisting of: thumb, finger, wrist, forearm, upper arm, toe, ankle, lower leg, thigh, torso and neck.

45. The method of claim 36, wherein the step member defines a wing portion that  
5 extends beyond the width of the strap when the step member is engaged to the strap.

46. The method of claim 36, further comprising providing a tension limiter.

47. A method for dampening vibration of soft tissue or musculature of a human  
10 wearer's body part, comprising

providing a stretchable strap having a length and width and having a body contacting surface and an outer surface, wherein said strap defines an axis, and further wherein one or more wing sections extend beyond the nominal width of said strap;

15 wrapping the stretchable strap around the body part so that the body contacting surface is in contact with the wearer's skin so that the stretchable strap is under tension.

48. The method of claim 47, wherein the stretchable strap exerts a tension of no more  
20 than 5 pounds-force.

49. The method of claim 47, wherein the stretchable strap exerts a tension of from 0.1 to 5 pounds-force.

25 50. The method of claim 47, wherein the stretchable strap is wrapped around a body

part selected from the group consisting of: thumb, finger, wrist, forearm, upper arm, toe, ankle, lower leg, thigh, torso and neck.

51. The method of claim 47, wherein the wing sections extend in a direction generally perpendicular to the axis of the strap.

52. The method of claim 47, wherein a first wing section extends from a first side of the strap in a direction generally perpendicular to the axis, and a second wing section extends from a second side of the strap in a direction generally perpendicular to the axis.

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53. The method of claim 52, wherein the first wing section defines a first center axis and wherein the second wing section defines a second center axis, and wherein the first center axis of the first wing section is generally aligned with the second center axis of the second wing section.

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54. The method of claim 47, wherein the wing sections extend outwardly from the strap from opposite sides of the strap.

55. The method of claim 47, further comprising providing a tension limiter.

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56. A vibration dampening device for wrapping a human body part, comprising:  
a strap having a nominal width and a length, and having a body contacting surface and an outer surface;  
a step member engaged to the strap, wherein said step member has a

length and a width, and the length of said step member is longer than the width of said step member, and further wherein the length of the step member is longer than the width of the strap.

57. The device of claim 56, wherein the step member is engaged to the outer surface  
5 of the strap.

58. The device of claim 56, wherein the step member is engaged to the body  
contacting surface of the strap.

10 59. The device of claim 56, wherein the step member has a proximal end and a distal  
end and at least one such end terminates in a semi-circular shape.